

# INTERNATIONAL SEARCH REPORT

International application No.

PCT US03/19503

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B66B 7:06  
US CL : 187:254, 411, 412

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 187/254, 411, 412

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2002-167137 A (TOSHIBA) 11 June 2002, Figures 1-5, abstract.	1, 5, 6, 8-10
X	US 6,336,523 B1 (OZEKI et al.) 08 January 2002, Figure 1, column 2, lines 33-35.	1 and 5
X	US 6,471,012 B2 (FALETTI) 29 October 2002, see entire document.	1, 5, 6, 8 and 10
X	US 6,234,276 B1 (WAGATSUMA et al.) 22 May 2001, Figures 2-4.	1, 5, 6 and 10
A	US 6,446,762 B1 (ST. PIERRE et al.) 10 September 2002, Figures 2-3.	1-17

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application not cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

21 September 2003 (21.09.2003)

Date of mailing of the international search report

08 OCT 2003

Name and mailing address of the ISA/US

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